2003
Urban Water Conservation Program

Grant Proposal

CII – School Zero Consumption Urinals Direct Install

December 3, 2002

2003 URBAN WATER CONSERVATION GRANT APPLICATION PACKAGE December 3, 2002

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Application Part A — Project Description, Organizational, Financial and Legal Information

A-1 Urban Water Conservation Grant Application Cover Sheet

1. Applicant (Organization or affiliation): Long Beach Water Department
2. Project Title: CII - School Zero Consumption Urinals Direct Install

3. Person authorized to sign and submit proposal:

Name, Title	Kevin Wattier, General Manager
Mailing address	Long Beach Water Department 1800 E. Wardlow Rd. Long Beach, CA 90807
Telephone	562/ 570-2300
Fax	562/ 595-0635
E-mai	kevin_wattier@lbwater.org

4. Contact person (if different):

Name, Title	Juan E. Ovalle , Administrative Analyst
Mailing address	Long Beach Water Department 1800 E. Wardlow Rd. Long Beach, CA 90807
Telephone	562/570-2308
Fax	562/595-0635
E-mail	juan_ovalle@lbwater.org

5. Funds requested (dollar amount): $168,625
6. Applicant funds pledged (local cost share) (dollar amount): $50,000
7. Total project costs (dollar amount): $218,625

8. Estimated net water savings (acre-feet/year): 46
   Estimated total amount of water to be saved (acre-feet):
   Over 20 years 920

   Benefit/cost ratio of project for applicant: 1.14
   Estimated $/acre-feet of water to be saved: $21,666

9. Project life (month/year to month/year): 7/01/03 to 9/1/04
10. State Assembly District where the project is to be conducted: 52, 54 & 55
11. State Senate District where the project is to be conducted: 25, 27 & 28
12. Congressional District(s) where the project is to be conducted: 37 & 45
13. County where the project is to be conducted: Los Angeles

14. Do the actions in this application involve physical changes in land use, or potential future changes in land use?
    (a) Yes _____
    (if yes, complete the land use check list at http://www.calfed.water.ca.gov/adobe_pdf/Questionnaires_EC_Permits_LandUse.pdf and submit it with the proposal

    (b) No __NO_____

A-2 Application Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the application;

The individual signing the form is authorized to submit the application on behalf of the applicant;

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the application on behalf of the applicant; and

The applicant will comply with all terms and conditions identified in this Application Package if selected for funding.

_____	Kevin Wattier, General Manager	_____
Signature	Name and title	Date

A-3 Application Checklist

Complete this checklist to confirm all sections of this application package have been completed.

Part A: Project Description, Organizational, Financial and Legal Information

_X_____A-1 Urban Water Conservation Grant Application Cover Sheet
_X_____A-2 Application Signature Page
_X_____A-3 Application Checklist
_X_____A-4 Description of project
_N/A___A-5 Maps
_X_____ A-6 Statement of work, schedule
_X_____A-7 Monitoring and evaluation
_X_____A-8 Qualification of applicant and cooperators
_X_____A-9 Innovation
_X_____A-10 Agency authority
_X_____A-11 Operation and maintenance (O&M)

Part B: Engineering and Hydrologic Feasibility (construction projects only)

_N/A____B-1 Certification statement
_ N/A ___B-2 Project reports and previous studies
_ N/A ___B-3 Preliminary project plans and specifications
_ N/A ___B-4 Construction inspection plan

Part C: Plan for Environmental Documentation and Permitting

_ N/A ___C-1 CEQA/NEPA
_ N/A ___C-2 Permits, easements, licenses, acquisitions, and certifications
_ N/A ___C-3 Local land use plans
_ N/A ___C-4 Applicable legal requirements

Part D: Need for Project and Community Involvement

_X_____D-1 Need for project
_X_____D-2 Outreach, community involvement, support, opposition

Part E: Water Use Efficiency Improvements and Other Benefits

_X_____E-1 Water use efficiency improvements
_X_____E-2 Other project benefits

Part F: Economic Justification, Benefits to Costs Analysis

_X_____F-1 Net water savings
_X_____F-2 Project budget and budget justification
_X_____F-3 Economic efficiency

Appendix: Benefit/Cost Analysis Tables

_X_____Tables 1; 2; 3; 4a, 4b, 4c, 4d; and 5

A-4 Description of Project

The proposed project is a partnership between Long Beach Water Department (LBWD), Long Beach Unified School District (LBUSD) and the Long Beach City College (LBCC). This project consists of implementing a commercial, institutional, and industrial (CII) program to replace existing high consumption urinals with new zero-consumption urinals in order to meet our long-term water conservation goals. The proposed program will offer free zero-consumption urinals to school facilities with existing urinals that have a greater than 1.6 gallons per flush water-fed urinals. Long Beach Water Department staff will coordinate the installations.

The term of the proposed project is one year and 2 months. The program goal is to install 500 zero-consumption urinals at a project average cost of $437 per zero-consumption urinal installed. School plumbing staff will be involved in all aspects of the installation of the zero-consumption urinals.

The proposed program will be operated as a pilot project to provide zero consumption urinals installed at no cost to the end user other than in-kind labor and staff support. The most effective means for operating this program is to work directly with the schools. The proposed pilot project will encourage all CII customers from varying sub-sectors to look into the new technology and to replace inefficient, older pre 1992 water-fed urinals with highly efficient and cost-effective zero-consumption urinals.

LBWD currently serves a population of approximately one half million people. The Project water savings will reduce the amount of imported water the LBWD currently purchases from the Metropolitan Water District of Southern California (MWD) and will reduce future demands on the State Water Project and Colorado River water supplies.

The programs water conservation and water use efficiency are consistent with LBWD's mission statement "to deliver an uninterrupted supply of quality water to our customers." This pilot program is an important component of the water conservation goals of the Californian Urban Water Conservation Council's BMP 9 of the MOU.

A-5 Maps

N/A

A-6 Statement of Work, Schedule (10% contingency not included)

Task	Task Name	Deliverable Item	Estimate	Start	End	Quarterly Expense
1	**Project Planning**		**$5,000**	**7/1/03**	**8/29/03**	**First/Qtr. $5,000**
	School Facility Identification	Finalize selection of facilities with LBCC & LBUSD.				
	RFP development	Develop and advertise RFP to provide and install zero-consumption urinals including maintenance training.				
	Contractor Selection	Selection of best qualified contractor proposals for urinal installation.				
2	**Program Administration**		**$16,250**	**9/1/03**	**9/30/04**	**Avg./Qtr. $4,062**
	Contract Administration	Administer and coordinate contract details with participating institutions.				
	Pre site survey and inspection	Perform water use site survey and confirm program eligibility.				
	Issue Vouchers	Develop program vouchers to issue to schools.				
	Post site survey and inspection	Evaluate water conserving measures installed perform water use audit.				
3	**Direct Install**	**Installation of zero-consumption urinals**	**$162,500**	**9/1/03**	**9/11/04**	**1st Qtr. $15,000 Avg. for 2nd to 4th Quarter =$49,167**
4	**Data Collection**		**$15,000**	**7/1/03**	**9/30/04**	**1st Qtr. $6,600 Avg. for 2nd to 4th Quarter =$2,800**
	Site Data	Develop database for LBCC and LBUSD. Data fields to include items listed in section A-7.				
	Water Use Data	Develop water savings calculations for each site receiving urinals .				
	Post Installation Questionnaire	Develop a post participation questionnaire to assess the program.				
	Data Reporting	Data collected to be reported to the CUWCC CII Committee for inclusion in the CUWCC's evaluation report.				

A-7 Monitoring and Evaluation

The Long Beach Water Department has historical water usage data for all school facilities in the City of Long Beach. However, LBWD will perform pre and post surveys of all sites receiving urinals from the CII School Direct Install Program. Pre-site surveys will also be performed in order to determine average water use per day from the existing high water consumption urinals at each site selected, and post-site evaluations will determine average water savings from the new zero-consumption urinals, as well as verify proper urinal installation. Water savings from the program will be calculated based on the cumulative water savings from the average number of flushes per day at each site before installation over the useful life of the urinal.

The monitoring of the program will be coordinated through the LBWD existing Commercial Industrial and Institutional Program. Because this program will be an integral part of the California Urban Water Conservation Council (CUWCC) evaluation of CII programs, the data collected for the program will follow the guidelines of the Best Management Practices (BMP 9) of the CUWCC Memorandum of Understanding, adopted by the City of Long Beach Board of Water Commissioners in 1995.

Data to be collected as part of this project will include:

- Changes in pre- to post- program water use using relevant water meters.
- Facility account information (account number, name, address and type of facility).
- Number of urinals replaced.
- Average pre-installation flushes per day per urinal.
- Total program costs per year, including labor, materials, training, and overhead services.
- Total program budget per year.
- Program funding sources per year, including intra-agency funding mechanisms, inter-agency cost sharing, state and federal financial assistance sources.
- Track rebates issued by Metropolitan Water District to participants.
- Descriptions of the program design and implementation, such as promotional methods and levels, and any participant follow up.
- Description of the program acceptance/resistance by members of participating institutions, students, staff and maintenance personnel, and other issues affecting the program implementation or effectiveness.

The CII School Direct Install Program will target the replacement of 500 high water using urinals with zero consumption urinals in the Long Beach Unified School District and Long Beach City College campuses during the course of one year. Since water savings are dependant on the type of high consumption urinal retrofitted with a zero consumption urinal, a conservative average savings of 30,000 gallons per year per urinal is being used in the calculations contained in this application. The annual water savings estimated is 46 Acre-Feet of water. The cumulative water savings expected for the 500 zero consumption urinals installed through the CII School Direct Install Program is 920 Acre-Feet (30,000 gallons per urinal/year x 500 urinals x 20 years) over the 20-year useful life of the urinals.

A-8 Qualifications of the Applicant and Cooperators

(*Please see Exhibit A-8 a & b for resumes*)

- Kevin Wattier, General Manager, Long Beach Water Department. Under direction of the City of Long Beach Board of Water Commissioners, Mr. Wattier is in charge of overseeing all aspects LBWD business from its aggressive capital improvement program to financial and strategic planning.
- Reymundo Trejo, Capital Projects Coordinator, has many years of project management and administrative skills, will oversee all aspects of LBWD involvement with the zero consumption urinal direct install program, such as project coordination, agreement administration, budget control, program implementation, data collection and reporting.
- The professional facility maintenance staff of both LBUSD and LBCC will assist in the overseen installation of the zero consumption urinals.

A-9 Innovation

The purpose of this project is to purchase and install zero-consumption urinals under the Long Beach Water Department's CII School Direct Install Program. This program will offer the Long Beach Unified School District (LBUSD) and Long Beach City College (LBCC) free zero consumption urinals with installation by Long Beach Water Department (LBWD) - contracted plumber(s); whose work will be overseen by professional facility maintenance staff from LBUSD and LBCC.

This project is an important step in the continuous search for new and innovative technologies that will reduce our dependence on imported water. The successful completion of this project will provide a model for efforts in other, government agencies, colleges, and sports venues of the economic and environmental benefit of replacing flush urinals with non-flush urinals. The project objective is to reduce water and sewer discharge by LBWD customers. A partnership between LBUSD, LBCC and LBWD has formed in order to participate in the installation of zero consumption urinals. The desired program will provide a meaningful, long-term implementation of a proven technology in the CII – Institutional sector. The main program objectives is to replace 500 high consumption urinals in a year. Benefits include water savings of over 46 Acre Feet per year, reduced sewage outflow, and progress towards meeting the conservation goals of regional, and statewide water plans.

The CII School Direct Install Program is locally cost-effective. The funds solicited through this grant will be used to subsidize these installations. The end-user will only be responsible for oversight of installations and ongoing maintenance fees associated with the zero consumption urinals.

LBWD will perform pre and post surveys of all sites receiving urinals from the CII School Direct Install Program. Pre-program surveys will be performed to determine average water use per day from the existing high water consumption urinals at each site selected, and post-program evaluations will determine average water savings from the new zero-consumption urinals, as well as verify proper urinal installation. Water savings from the program will be calculated based on the cumulative water savings from the average number of flushes per day at each site before installation over the useful life of the urinal.

A-10 Agency Authority

Address the following five questions pertaining specifically to this application.

1. Does the applicant (official signing A-2, Application Signature Page) have the legal authority to submit an application and to enter into a funding contract with the State? Provide documentation such as an agency board resolution or other evidence of authority. The General Manager has blanket authority to apply for funding at his/her discretion with out Board of Water Commissioners approval.

2. What is the legal authority under which the applicant was formed and is authorized to operate? City Charter of the City of Long Beach

3. Is the applicant required to hold an election before entering into a funding contract with the State? NO

4. Will the funding agreement between the applicant and the State be subject to review and/or approval by other government agencies? If yes, identify all such agencies (e.g. Local Area Formation Commission, local governments, U.S. Forest Service, California Coastal Commission, California Department of Health Services, etc.). NO

5. Is there any pending litigation that may impact the financial condition of the applicant, the operation of the water facilities, or its ability to complete the proposed project? If none is pending, so state. None Pending

A-11 Operations and Maintenance

(Required for construction projects only, including meter installations.)

N/A

Application Part B—Engineering and Hydrologic Feasibility

N/A

Application Part C—Plan for Completion of Environmental Documentation and Permitting Requirements

N/A

Application Part D- Need for Project and Community Involvement

D-1 Need for the Project

Today the Bay-Delta system is experiencing serious problems. Not only are the habitats declining, the system has suffered from impaired water quality as well as significant declined water supply reliability to Southern California. The Bay-Delta system is an intricate web of waterways created at the junction of the San Francisco Bay and the Sacramento and San Joaquin rivers and the watershed that feeds them. More than 22 million Californians rely on the system for all or some of their drinking water. For southern California, fixing the Bay-Delta System means better drinking water quality and a more secure economy because the Bay-Delta system supplies an essential portion of the water consumed by 17 million southern Californians and their $450 billion economy. The CALFED Bay-Delta Program was formulated to bring together cooperative efforts among state and federal agencies and California's environmental, urban and agricultural communities to address these problems. The CALFED Bay-Delta Program is currently in its third phase to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta System. Success of the CALFED Bay-Delta Program depends upon the involvement and support of the public through various programs. Close cooperation has to be extended beyond state and federal agencies, to urban and agricultural water users and others who play an important role in the collaborative process of solving problems.

Southern California's population and economy are expected to increase about 40% in the next 20 years while Colorado River supplies are expected to decrease and the State Water Project supplies to remain at current levels. Elimination of wasteful water practices is one essential step that must be taken to correct this impending imbalance between supply and demand.

Recognizing that zero water urinals potentially represents one of the greatest sources of conservation in CII restrooms, LBWD offers a variety of services and programs to CII customers designed to meet the requirements of the California Urban Water Conservation Councils (CUWCC), Best Management Practices (BMP) #9. One such service is assisting our CII customers by providing rebates through the Metropolitan Water District of Southern California. These incentives are geared for customers upgrading systems such as toilets and urinals in order to increase efficient water use, such is the case with some of our largest customers, Long Beach Unified School District and Long Beach City College.

The CII School Direct Install Program intends to build on LBWD's existing CII conservation program and promote water use efficiency to maximize water conservation throughout the City starting with our schools. Schools have the greatest potential to save water through zero water urinals than any other institution. It will enhance local flexibility and reliability of water supply through incentive-based programs. The project is consistent with the City's existing water management plan and in conformance with guidelines prepared by the CUWCC in the "Memorandum of Understanding Regarding Urban Water Conservation in California".

D-2 Outreach, Community Involvement, Support, Opposition

The community has been our greatest supporters in developing the School Direct Install Program. This program will offer the Long Beach Unified School District (LBUSD) and Long Beach City College (LBCC) free zero consumption urinals with installation by Long Beach Water Department (LBWD) - contracted plumber(s). Both of these institutions are concerned about LBWD's and California's water conservation issues and would like to increase their participation by controlling the amount of water that is flushed with water urinals (see attached letters of support). Both of these institutions have for many years been irrigating many of their campuses with reclaimed water and have upgraded many of their high water using urinals with the 1.6 water urinals and feel that these program will move them forward to achieving greater savings.

Therefore, LBWD, being the water purveyor to the City has taken the lead in demonstrating to both of these institutions that we are serious about water conservation and that well planned water conservation projects can be of tremendous benefit to all parties involved. The City's environmental community has also endorsed our plan to install zero consumption urinals as a solid step forward in curbing wasteful flushing. The Metropolitan Water District of Southern California is in support of our efforts to bring new and proven water conserving technology to the City of Long Beach.

LBWD has had for many year a variety of programs that teach all of the 3rd and 4th graders about water conservation and water issues in addition to developing various customer water educational and conservation materials. Therefore, in addition to the environmental benefits of installing zero consumption urinals it is also expected that the K-12 and college students that use these urinals will also become participants in our goals of conserving water and inspiring people to become water aware.

LBWD will work with LBUSD and LBCC plumbing supervisor in order to utilize in house staff when ever possible. Local plumbing firms will be hired in order to assist in the installation of zero consumption urinals. Since there will be several plumbing firms on the approval list, the amount of work each receives from the program will vary.

Once the project has been completed, LBWD will continue its outreach efforts with all of our CII customers in order to bring awareness of the new zero consumption urinal technology. We will showcase LBCC and LBUSD as schools that are in the forefront of water conserving technology. Reports summarizing the results from this project will be shared with water industry experts through the CUWCC and AWWA.

Application Part E—Water Use Efficiency Improvements and Other Benefits

E-1 Water Use Efficiency Improvements

Implementation of this project will enable the City of Long Beach to realize savings of at least 920 acre-feet, cumulatively over the 20 year life of the zero consumption urinals, of imported water supply purchased from Metropolitan Water District of Southern California (MWD). The installation of these urinals will not only save water from LBUSD and LBCC facilities it will also reduce the City's over all water consumption through greater compliance with our water conservation messages. Our water customers and students take their water-use cues from the City and other institutions such as LBCC and LBUSD. When these organizations appear to ignore water conservation by using significantly more water than is necessary, our students and eventually our customers likewise tend to ignore our water conserving admonitions.

The total net amount of water savings is expected to be approximately $20,500 but will increase based on annual MWD water rate increases.

Given that the zero consumption urinals will have a 20 year useful life and quantifiable benefits that include annual avoided costs of $21,666, total annual costs of $19,064 and a total benefit / cost ration of 1.08. In addition the total customer avoided costs for the expected water savings of 46 acre-feet per year will exceed $33,870 per year based on LBWD water and sewage fees. The CII School Direct Install Program is a great example of water use efficiency.

E-2 Other Project Benefits

The improved water use efficiency of both LBCC and LBUSD will not only save the schools critically needed funds from avoided water and sewer charges, it will also provide an opportunity to change old urinals with new. This is an added bonus since many of the schools are in dire need of infrastructure and aesthetic upgrades. The students will benefit from this since it shows that the schools are working on the improvement of all aspects of their schools.

The installation of the zero consumption urinals will also benefit local economy by contributing to the long-term goals of water reliability in the City of Long Beach and the additional employment for the installation. The State will also benefit from energy savings as a result of less water pumped into the system and locally the County Sanitation Districts will also save by less water flowing to the waste treatment plants. The water industry and planners of the state will also benefit from the knowledge gained from data collection of large-scale installations of zero consumption urinals.

Additional benefits from the installation of these urinals is in the area of maintenance, since the urinals use zero water, they are not subject to the wear and tear of valves or of vandalism. Also, water saved from not having valves that stick in the open position or vandalism that may break valves or clog urinal drains and even flood restrooms can be reduced. The urinals are designed to be maintained by the schools maintenance personnel and not by the plumbing staff. Leaving overburdened school plumbing and construction personnel free for more critical tasks.

Application Part F – Economic Justification: Benefits to Costs

F-1 Net Water Savings

Assumptions in calculating net water savings are based on the following:

Average water savings from CII zero consumption urinal retrofit is higher than the 82 gpd LBWD has chosen as a conservative number. CII urinal retrofit assumptions are based on the CUWCC estimates of reliable water savings developed as part of the CII ULFT Savings Study performed by Hagler Bailly Services Incorporated, August 5, 1997.

LBWD avoided costs of water are $471 per AF, based on the marginal cost of fully treated water from MWD ($431 AF) and Ready to Serve charges (approximately $40/AF). The projected annual water savings from the installation of 500 zero water consumption urinals is 46 acre-feet, the total annual avoided cost is $21,666 *(Please see Table 4).*

F-2 Project Budget and Budget Justification

The primary item in the project budget is the equipment purchase and installation at a conservative figure of $325.00. This figure is based on the cost of zero consumption urinals and union wages per retrofit, calculated at about 1.5 hrs per install. LBCC and LBUSD pay and hire union plumbers; therefore, we will work with both of these institutions in order to attract union contractors to perform the retrofit work. Planning, Administrative costs and pre and post inspections, as well as data collection and reporting will account for $72.50 per retrofit bringing the total to $397.50 per retrofit. In addition A 10% contingency fee of $39.75 per urinal installed. The grand total requested per zero consumption urinal is $437.25 bringing the project grand total for the 500 urinals to be retrofitted to $218,625 as shown on Table 1.

Project Budget

Item	Justification	Cost	Contingency	Subtotal
Planning	Work with LBCC and LBUSD in finalizing identification of all water consuming urinals to be replace as well as developing a schedule. Developing an RFP for zero consumption urinals and installation. Selection of equipment provider and installer. Develop contract documents.	5,000	10.00%	5,500
Materials/Installation	Zero water consuming urinals and installation services.	162,500	10.00%	178,750
Administration/Overhead	Project administration and support including overhead. Coordinate contract details with participation institutions, perform site surveys, develop program vouchers/agreement with schools. Evaluate water conserving measures.	16,250	10.00%	17,875
Other (Data Collection)	Data collection during pre and post inspections as well as data reporting. Development of database for LBCC and LBUSD. Develop water saving calculations for each site receiving zero water urinals, and post participation questionnaire to assess the program.	15,000	10.00%	16,500

Total		218,625
Capital Recovery Factor: From Table 6		0.0872
Annual Capital Costs		19,064

F-3 Economic Efficiency

An economic analysis has been prepared to assess the Economic Efficiency of the CII zero consumption urinal program. For the purposes of calculating the economic benefits we used the avoided costs of future supplies. The avoided cost valuation method is appropriate since it is reasonable to assume that the identified alternative(s) will indeed continue. Those alternatives being not doing anything and paying for imported water.

Quantifiable direct economic benefits and costs to LBWD is as follows:

- Avoided water purchases from MWD of approximately 46 acre-feet/yr at $471/acre-foot
- Program cost of proposed project $218,625

Analysis assumptions

• **Period of analysis.** The economic evaluation for the CII School Direct Install Zero Consumption Urinal Program analysis period is of 20 years based on the useful life of the equipment.

• **Inflation and escalation.** Per this applications guidelines, LBWD has assumed zero inflation and escalation of costs.

• **Discount rate.** Because benefits and costs of projects are evaluated over a period of time based on the life of the project, they must be discounted to reflect the value of money over time (a dollar received today is worth more than one received in the future). Per this applications guidelines, LBWD used a 6 percent discount rate.

• **Dollar value base year.** All benefits and costs are expressed in current year dollars (2002).

• **Multiple-funded projects.** The economic analysis has been conducted for the entire project, regardless of funding sources. All project costs (capital and O&M) have been included in the economic analysis, even thou MWD offers a $60 rebate per zero consumption urinal installed.

• **Project costs** (Tables 1, 2, and 3). Project costs include capital (construction) and annual operation and maintenance (O&M) costs.

• **Avoided Cost of Current Supply Source** (Table 4a). The avoided cost is the cost LBWD will incur, if the proposed project is not implemented from the additional purchase of imported water from MWD. The avoided purchases will be 46 acre-feet of water per year at an avoided cost of $471 per acre-foot. The total annual avoided cost is $21,666.

• Additional Benefits

In addition to the above describe costs and benefits the project has other benefits that are not adequately captured in the tables provided. Quantifiable direct economic benefits accruing to project participants, Long Beach City College and Long Beach Unified School District, are as follows:

- Avoided maintenance costs of up to $20,000 per year for the 500 zero consumption urinals installed
- Avoided water usage fees of up $30,782 per year for 500 zero consumption urinals installed.
- Avoided sewer fees of up $3,088 per year for 500 zero consumption urinals installed.
- Metropolitan Water District (MWD) rebate of $60 per zero consumption urinal installed. $30,000 for 500 zero consumption urinals installed.

Total Quantifiable direct economic benefits to LBCC and LBUSD for the replacement of 500 water consuming urinals with zero water consuming urinals is of $84,000 the first year and $54,000 per year for the life of the zero consuming urinals. This direct economic benefit does not take into account inflation or other increasing variables such as water rates from MWD.

The table below includes all quantifiable direct economic benefits to LBWD, LBCC & LBUSD however, it does not include MWD's rebate of $30,000 for 500 urinals installed nor does it include direct avoided water costs to LBCC or LBUSD. The table clearly shows that the rate of return on the initial investment could easily be arrived at the end of year six.

Additional Benefits Table

		Savings/Costs in 2002 dollars					Present Value	
Year	Year #	Capital Cost of Project	Less Avoided Water Cost to LBWD	Less Sewer Savings to Participant	Less O&M Savings to Participant	Annual Net Savings	Total	Cumulative
2004	0	$ (218,625)				$(218,625)	$ (218,625)	$ (218,625)
2005	1		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 42,221	$ (176,404)
2006	2		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 39,831	$ (136,573)
2007	3		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 37,577	$ (98,996)
2008	4		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 35,450	$ (63,547)
2009	5		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 33,443	$ (30,104)
2010	6		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 31,550	$ 1,471
2011	7		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 29,764	$ 31,210
2012	8		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 28,079	$ 59,290
2013	9		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 26,490	$ 85,780
2014	10		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 24,991	$ 110,770
2015	11		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 23,576	$ 134,346
2016	12		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 22,241	$ 156,588
2017	13		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 20,983	$ 177,570
2018	14		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 19,795	$ 197,365
2019	15		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 18,674	$ 216,039
2020	16		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 17,617	$ 233,657
2021	17		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 16,620	$ 250,277
2022	18		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 15,679	$ 265,956
2023	19		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 14,792	$ 280,748
2024	20		$ 21,666	$ 3,088	$20,000	$ 44,754	$ 13,955	$ 294,703

Appendix- Benefit/Cost Analysis Tables

Appendix- Benefit/Cost Analysis Tables

Exhibit A-8 Resumes

Letters of Support